

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An ultrasonic imaging apparatus comprising:
  - an ultrasonic probe;
  - a plurality of acoustic elements configured and arranged to form a two-dimensional array, said two-dimensional array configured and adapted to fit within the ultrasonic probe wherein said plurality of acoustic elements includes at least ~~one~~ two active acoustic ~~element~~ elements capable of generating an ~~acoustic pulse~~ pulses and/or receiving an ~~echo signal~~ signals; and
  - a beam controller coupled to said two-dimensional array, said beam controller capable of driving the at least ~~one~~ two active acoustic ~~element~~ elements to produce said acoustic ~~pulse~~ pulses originating from the two active acoustic elements for impinging an

acoustic target to generate ~~at least one the echo signal signals~~,  
and having associated circuitry capable of controlling directional  
movement of said acoustic ~~pulse-pulses~~ by tractor treading.

2. (Currently Amended) The ultrasonic imaging apparatus of  
claim 1, wherein the beam controller further includes associated  
circuitry capable of controlling directional movement of said  
acoustic ~~pulse-pulses~~ by beam steering.

3. (Currently Amended) The ultrasonic imaging apparatus of  
claim 1, further including a signal processor coupled to said two-  
dimensional array for processing the ~~at least one echo signal~~  
~~signals~~, thereby forming at least one image signal.

4. (Original) The ultrasonic imaging apparatus of claim 1,  
wherein said two-dimensional array is configured and arranged in a  
substantially planar configuration.

5. (Original) The ultrasonic imaging apparatus of claim 1,  
wherein said two-dimensional array is configured and arranged in a

substantially cylindrical configuration.

6. (Original) The ultrasonic imaging apparatus of claim 1, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

7. (Original) The ultrasonic imaging apparatus of claim 7, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.

8. (Currently Amended) A method for improving volumetric imaging in an ultrasonic imaging apparatus comprising the ~~steps~~ acts of:

providing an ultrasonic probe;

providing a plurality of acoustic elements configured and arranged to form a two-dimensional array, said two-dimensional array configured and adapted to fit within the ultrasonic probe wherein said plurality of acoustic elements includes at least ~~one~~ two active acoustic ~~element~~ elements capable of generating ~~an~~ acoustic pulse ~~pulses~~ originating from the two active acoustic

elements and/or receiving an echo-signal signals;

providing a beam controller coupled to said two-dimensional array, said beam controller capable of driving the at least ~~one-two~~ of active acoustic ~~element~~ elements to produce said acoustic pulse pulses for impinging an acoustic target to generate at ~~least one~~ the echo signal-signal and having associated circuitry capable of controlling directional movement of said acoustic ~~pulse-pulses~~ by tractor treading; and

actuating said beam controller to generate and move said acoustic-pulse pulses.

9. (Currently Amended) The method of claim 8, wherein the beam controller further includes associated circuitry capable of controlling directional movement of said acoustic ~~pulse-pulses~~ by beam steering.

10. (Currently Amended) The method of claim 8, further comprising the ~~step-act~~ of providing a signal processor coupled to said two-dimensional array for processing the at ~~least one~~ echo signal-signal, thereby forming at least one image signal.

11. (Currently Amended) The method of ~~claim 9~~ claim 10, further comprising the ~~step~~ act of displaying data corresponding to the at least one image signal.

12. (Original) The method of claim 8, wherein said two-dimensional array is configured and arranged in a substantially planar configuration.

13. (Original) The method of claim 8, wherein said two-dimensional array is configured and arranged in a substantially cylindrical configuration.

14. (Original) The method of claim 8, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

15. (Original) The method of claim 14, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.

16. (Currently Amended) An ultrasonic imaging kit comprising:  
at least two ultrasonic probes, each having a transducer array  
and associated circuitry where each ultrasonic probe is configured  
and dimensioned for alternative placement within an ultrasonic  
system, at least one ultrasonic probe further including a plurality  
of acoustic elements configured and arranged to form a two-  
dimensional array, said two-dimensional array configured and  
adapted to fit within the ultrasonic probe wherein said plurality  
of acoustic elements includes at least ~~one~~ two active acoustic  
~~element~~ elements capable of generating ~~an~~ acoustic pulse ~~pulses~~  
and/or receiving ~~an~~ echo signal signals; and

a beam controller coupled to the circuitry of the ultrasonic  
probe and in communication with said transducer array disposed  
within said ultrasonic probe, said beam controller capable of  
driving the at least ~~one~~ two active acoustic ~~element~~ elements to  
produce said acoustic ~~pulse~~ pulses originating from the two active  
acoustic for impinging an acoustic target to generate ~~at least one~~  
~~echo signal~~ signals and having associated circuitry capable of  
controlling directional movement of said acoustic ~~pulse~~ pulses by

tractor treading.

17. (Currently Amended) The ultrasonic imaging kit of claim 16, wherein the beam controller further includes associated circuitry capable of controlling directional movement of said acoustic ~~pulse~~ pulses by beam steering.

18. (Currently Amended) The ultrasonic imaging kit of claim 16, further including a signal processor coupled to said two-dimensional array for processing the ~~at least one echo signal~~ signals, thereby forming at least one image signal.

19. (Original) The ultrasonic imaging kit of claim 16, wherein said two-dimensional array is configured and arranged in a substantially planar configuration.

20. (Original) The ultrasonic imaging kit of claim 16, wherein said two-dimensional array is configured and arranged in a substantially cylindrical configuration.

21. (Original) The ultrasonic imaging kit of claim 16, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

22. (Original) The ultrasonic imaging kit of claim 21, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.

23. (Currently Amended) An ultrasonic imaging system comprising:

an ultrasonic probe;

a plurality of acoustic elements configured and arranged to form a two-dimensional array, said two-dimensional array configured and adapted to fit within the ultrasonic probe wherein said plurality of acoustic elements includes at least ~~one~~ two active acoustic ~~element~~ elements capable of generating an ~~acoustic pulse~~ pulses and/or receiving an ~~echo-signal~~ signals; and

a beam controller coupled to said two-dimensional array, said beam controller capable of driving the at least ~~one~~ two active acoustic ~~element~~ elements to produce said acoustic ~~pulse~~ pulses



originating from the two active acoustic for impinging an acoustic target to generate ~~at least one the echo signal~~ signals, and having associated circuitry capable of controlling directional movement of said acoustic pulse pulses by tractor treading.

24. (Currently Amended) The ultrasonic imaging system of claim 23, further comprising:

a signal processor coupled to said two-dimensional array for processing the ~~at least one echo signal~~ signals, thereby forming at least one image signal;

means for connecting said ultrasonic probe to an ultrasonic imaging apparatus; and

means for displaying the at least one image signal.

25. (Currently Amended) The ultrasonic imaging system of claim 23, wherein the beam controller includes associated circuitry capable of controlling directional movement of said acoustic ~~pulse~~ pulses by beam steering.

26. (Original) The ultrasonic imaging system of claim 23,

wherein said two-dimensional array is configured and arranged in a substantially planar configuration.

27.(Original) The ultrasonic imaging system of claim 23, wherein said two-dimensional array is configured and arranged in a substantially cylindrical configuration.

28.(Original) The ultrasonic imaging system of claim 23, wherein said two-dimensional array is configured and arranged in a substantially convex configuration.

29.(Original) The ultrasonic imaging system of claim 28, wherein said convex configuration includes substantially equal lateral and longitudinal dimensions.